5   CLAIMS

What is claimed is:

     1.   A method for modifying the structure of a network
accessible web site based on an analysis of activity associated
10   with the web site, the method comprising the steps of:
          monitoring activity associated with said web site;
          maintaining data representative of said activity and a
               present structure of said web site;
          applying a set of rules to said data to generate a
15   recommendation; and
          modifying said structure of said web site based on said
               recommendation.

     2.   The method of claim 1, wherein the web site comprises a
20   home page, and a plurality of objects of interest, the home page
and plurality of objects of interest being accessible by a
network address, and further comprising the step of identifying
said present structure of said web site.

25   3.   The method of claim 2, wherein the step of identifying
said present structure of said web site further comprises the
steps of:
          accessing said web site via said network address;
          parsing the structure data of said web site to generate said
30   present structure; and
          storing data representative of said present structure.

5   4.   The method of claim 3, wherein the objects of interest of the web site have an inter-connection relationship to each other, numeric identifiers, names, and aliases to the names, and the step of parsing the structure data further comprises at least one of the following steps:

10   (a)   retrieving said names of said objects of interest;

(b)   retrieving said numeric identifiers of said objects of interest;

(c)   retrieving said aliases corresponding to said objects of interest;

15   (d)   retrieving said inter-connection relationship of said objects of interest;

(e)   retrieving a list of children, wherein said children are the identities of all said objects of interest that may be accessed directly from a
20   particular object of interest;

(f)   retrieving a list of parents, wherein said parents are the identities of all said objects of interest that have direct access to a particular object of interest; and

25   (g)   retrieving a list of page distances, wherein said page distances are the number of objects of interest that must be accessed to get from one object of interest to a different object of interest.

30   5.   A computer-readable medium having computer executable instructions for performing the steps recited in claim 1.

6.   A computer-readable medium having computer executable instructions for performing the steps recited in claim 2.

7.   A computer-readable medium having computer executable
35   instructions for performing the steps recited in claim 3.

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8.   The method of claim 2, wherein activity associated with
the web site is comprised of user sessions, the user sessions
comprising user accesses, the step of monitoring activity further
comprises the steps of:

10   identifying a user of said user sessions;
        mapping data associated with said user session; and
        storing said data associated with said user session in a
            data storage means.

15   9.   The method of claim 8, wherein the step of mapping the
data further comprises the following steps:
        retrieving the order of user accesses to said web site's
            objects of interest; and
        retrieving the time of said user accesses to said web site's
20   objects of interest.

        10. A computer-readable medium having computer executable
instructions for performing the steps recited in claim 8.
        11. A computer-readable medium having computer executable
25   instructions for performing the steps recited in claim 9.

5   12. The method of claim 2, wherein said maintaining step further comprises at least one of the following steps:

(a)   creating an elements data structure, wherein said elements data structure indicates a total number of objects of interest within said web site;

10   (b)   creating a session step data structure, wherein said session step data structure indicates the maximum number of steps in any of said user sessions;

(c)   creating a SPUS structure, wherein said SPUS structure indicates a total number of steps per user session;

15   (d)   creating a TUS structure, wherein said TUS structure indicates a total number of user sessions;

(e)   creating a CLASS structure, wherein said CLASS structure indicates a class for each object of interest in said web site; and

20   (f)   creating a TC structure, wherein said TC structure indicates a total number of said classes in said web site.

13.   The method of claim 12, wherein said maintaining step further comprises at least one of the following steps:

(a)   creating a distance matrix, said distance matrix having two dimensions, wherein said distance matrix indicates the shortest object distance;

(b)   creating a links-to matrix, said links-to matrix having two dimensions in the form [x][y], wherein said links-to matrix indicates the number of links to a particular object of interest by a specific Step or less, the number of links is indicated by [y], the specific Step or less is indicated by [x];

(c)   creating a links-from matrix, said links-from matrix having two dimensions in the form [x][y], wherein said links-from matrix indicates the total number of links from a certain object of interest to other objects of interest by a specific Step or less, the total number of links to other objects of interest being indicated by [x], and the specific Step or less being indicated by [y];

(d)   creating a total accesses-to matrix, wherein said total accesses-to matrix indicates the total number of accesses to a particular object of interest in a specific Step within said user session;

(e)   creating a total access-from matrix, wherein said total access-from matrix indicates the total number of accesses from a particular object in a specific step within said user session; and

5   (f)   creating an access matrix, said access matrix having
           three dimensions in the form [x] [y] [z], wherein said
           access matrix indicates the number of times an object
           of interest was accessed from one particular object of
           interest to a different object of interest at a
10   specific Step, from one particular object of interest
           being indicated by [x], to a different object of
           interest being indicated by [y], and the specific Step
           being indicated by [z].

15   14.   A computer-readable medium having computer executable
     instructions for performing the steps recited in claim 12.

     15.   A computer-readable medium having computer executable
     instructions for performing the steps recited in claim 13.

20   16.   The method of claim 2, wherein the basic rules are
     applied utilizing a rule engine algorithm and an anomalies
     floatation device, the step of applying a set of rules further
     comprising the steps of:

     (a)   applying a rule of object distance, wherein said object
25   distance is the number of objects of interest that must
           be accessed to get from one of said objects of interest
           to a different object of interest;

     (b)   applying a rule of Step, wherein the Step is the number
           of objects of interest that is actually accessed to get
30   from one of said objects of interest to a different
           said objects of interest during said user session; and

     (c)   applying a rule of Class, wherein said Class is the
           number of objects of interest that must be accessed to
           get from said homepage of said web site to said objects
35   of interest.

5   17.   The method of claim 16, wherein said step of applying a
set of rules further comprises the steps of:

transferring the maintained data to said anomaly floatation
        device;

comparing an expected activity data to said data

10   representative of said activity, wherein said anomalies
        floatation device having an output comprised of
        anomalies; and

grouping said anomalies according to said activity, wherein
        said grouping is performed by said rule engine

15   algorithm to indicate recommendations.

5   18.   The method of claim 17, wherein the step of comparing
further comprises at least one of the following steps:

    (a)   applying a step-distance anomaly, wherein said step-
           distance anomaly is based on at least the number of
           accesses in the particular Step and the distance

10   between two particular objects of interest;

    (b)   applying a no-link anomaly, wherein said no-link
           anomaly is based at least in part on the number of
           accesses in a particular Step and the distance between
           the two particular objects of interest, the two

15   particular objects of interest having no direct
           hyperlink;

    (c)   applying a dominant anomaly, wherein said dominant
           anomaly is based at least in part on a dominant object
           of interest from which the most accesses are made to a

20   particular object of interest in a particular Step;

    (d)   applying a deficiency anomaly, wherein said deficiency
           anomaly is based at least in part on a deficient object
           of interest to which a deficient number of accesses are
           made from a particular object of interest in a

25   particular Step;

    (e)   applying a dominant-connect anomaly, wherein said
           dominant-connect anomaly is based at least in part on a
           dominant number of accesses being made from said
           dominant object of interest among a plurality of

30   connected objects of interest to a particular object of
           interest in a particular Step;

5 (f) applying a deficiency-connect anomaly, wherein said deficiency-connect anomaly is based at least in part on a deficient number of accesses being made from a deficient object of interest among a plurality of connected objects of interest to a particular object of

10   interest in a particular Step;

 (g) applying a high access ratio anomaly, wherein said high access ratio anomaly is based at least in part on the number of accesses in a particular step using only one direction of access and the distance between the two

15   particular objects of interest, the two particular objects of interest having no direct hyperlink;

 19. The method of claim 18, wherein if the step of applying a dominant anomaly is applied, the step of comparing further

20 comprises at least one of the following steps:

 (h) applying a threshold-dominant anomaly, wherein said threshold-dominant anomaly is based at least in part on the most accesses to a given object of interest at a plurality of step distances, the accesses to said given

25   object of interest must exceed a pre-set minimum; and

 (i) applying a complete-a-link anomaly, wherein said complete-a-link anomaly is based at least in part on the ratio of accesses from a particular objects of interest directly linked to another versus a particular

30   objects of interest linked to others by a greater distance.

 20. A computer-readable medium having computer executable instructions for performing the steps recited in claim 16.

35 21. A computer-readable medium having computer executable instructions for performing the steps recited in claim 17.

5   22.   A computer-readable medium having computer executable
instructions for performing the steps recited in claim 18.

      23.   A computer-readable medium having computer executable
instructions for performing the steps recited in claim 19.

10   24.   The method of claim 2, wherein the step of customizing
the web site is performed automatically by a computer-readable
medium having computer executable instructions for performing the
step, based at least in part on said recommendations for
customizing said web site.

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      25.   The method of claim 2, wherein the step of customizing
said web site is performed by interacting with said web site
structure through human intervention, based at least on said
recommendations for customizing said web site.

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      26.   The method of claim 1, wherein activity associated with
the web site is comprised of user sessions, the user sessions
comprising user accesses, the step of monitoring activity further
comprises the steps of:

25   identifying a user of said user sessions;
         mapping data associated with said user session; and
         storing said data associated with said user session in a
         data storage means.

5   27.   The method of claim 26, wherein the step of mapping the
data further comprises the steps of:
           retrieving the order of user accesses to said web site's
                 objects of interest; and
           retrieving the time of said user accesses to said web site's
10   objects of interest.

           28. A computer-readable medium having computer executable
instructions for performing the steps recited in claim 26.
           29. A computer-readable medium having computer executable
15   instructions for performing the steps recited in claim 27.

           30.   The method of claim 1, wherein said maintaining step
      further comprises at least one of the following steps:
           (a)   creating an elements data structure, wherein said
20   elements data structure indicates a total number of
                  objects of interest within the website;
           (b)   creating a session step data structure, wherein said
                  session step data structure indicates the maximum
                  number of steps in any of said user sessions;
25   (c)   creating a SPUS structure, wherein said SPUS structure
                  indicates a total number of steps per user session;
           (d)   creating a TUS structure, wherein said TUS structure
                  indicates a total number of user sessions;
           (e)   creating a CLASS structure, wherein said CLASS
30   structure indicates a class for each object of interest
                  in said web site; and
           (f)   creating a TC structure, wherein said TC structure
                  indicates a total number of said classes in said web
                  site.
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5   31. The method of claim 30, wherein said maintaining step
further comprises at least one of the following steps:

      (a) creating a distance matrix, said distance matrix having
           two dimensions, wherein said distance matrix indicates
           the shortest object distance;

10   (b) creating a links-to matrix, said links-to matrix having
           two dimensions in the form [x] [y], wherein said links-
           to matrix indicates the number of links to a particular
           object of interest by a specific Step or less, the
           number of links is indicated by [y], the specific Step

15   or less is indicated by [x];

      (c) creating a links-from matrix, said links-from matrix
           having two dimensions in the form [x] [y], wherein said
           links-from matrix indicates the total number of links
           from a certain object of interest to other objects of

20   interest by a specific Step or less, the total number
           of links to other objects of interest being indicated
           by [x], and the specific Step or less being indicated
           by [y];

      (d) creating a total accesses-to matrix, wherein said total

25   accesses-to matrix indicates the total number of
           accesses to a particular object of interest in a
           specific Step within said user session;

      (e) creating a total access-from matrix, wherein said total
           access-from matrix indicates the total number of

30   accesses from a particular object in a specific step
           within said user session; and

5   (f)   creating an access matrix, said access matrix having
           three dimensions in the form [x] [y] [z], wherein said
           access matrix indicates the number of times an object
           of interest was accessed from one particular object of
           interest to a different object of interest at a
10   specific Step, from one particular object of interest
           being indicated by [x], to a different object of
           interest being indicated by [y], and the specific Step
           being indicated by [z].

15   32.   A computer-readable medium having computer executable
instructions for performing the steps recited in claim 30.
      33.   A computer-readable medium having computer executable
instructions for performing the steps recited in claim 31.

20   34.   The method of claim 1, wherein the basic rules are
applied utilizing a rule engine algorithm and an anomalies
floatation device, the step of applying a set of rules further
comprises the steps of:
      (a)   applying a rule of object distance, wherein said object
25   distance is the number of objects of interest that must
             be accessed to get from one of said objects of interest
             to a different object of interest;
      (b)   applying a rule of Step, wherein the Step is the number
             of objects of interest that is actually accessed to get
30   from one of said objects of interest to a different
             said objects of interest during said user session; and
      (c)   applying a rule of Class, wherein said Class is the
             number of objects of interest that must be accessed to
             get from said homepage of said web site to said objects
35   of interest.

5   35.   The method of claim 34, wherein said step of applying a
      set of rules further comprises the steps of:

               transferring the maintained data to said anomaly floatation
                     device;

               comparing an expected activity data to said data
10   representative of said activity, wherein said anomalies
                     floatation device having an output comprised of
                     anomalies; and

               grouping said anomalies according to said activity, wherein
                     said grouping is performed by said rule engine
15   algorithm to indicate recommendations.

36. The method of claim 35, wherein the step of comparing further comprises at least one of the following steps:

(a) applying a step-distance anomaly, wherein said step-distance anomaly is based on at least the number of accesses in the particular Step and the distance between two particular objects of interest;

(b) applying a no-link anomaly, wherein said no-link anomaly is based at least in part on the number of accesses in a particular Step and the distance between the two particular objects of interest, the two particular objects of interest having no direct hyperlink;

(c) applying a dominant anomaly, wherein said dominant anomaly is based at least in part on a dominant object of interest from which the most accesses are made to a particular object of interest in a particular Step;

(d) applying a deficiency anomaly, wherein said deficiency anomaly is based at least in part on a deficient object of interest to which a deficient number of accesses are made from a particular object of interest in a particular Step;

(e) applying a dominant-connect anomaly, wherein said dominant-connect anomaly is based at least in part on a dominant number of accesses being made from said dominant object of interest among a plurality of connected objects of interest to a particular object of interest in a particular Step;

5   (f)   applying a deficiency-connect anomaly, wherein said
          deficiency-connect anomaly is based at least in part on
          a deficient number of accesses being made from a
          deficient object of interest among a plurality of
          connected objects of interest to a particular object of

10   interest in a particular Step;

     (g)   creating a high access ratio anomaly, wherein said high
          access ratio anomaly is based at least in part on the
          number of accesses in a particular step using only one
          direction of access and the distance between the two

15   particular objects of interest, the two particular
          objects of interest having no direct hyperlink;

     37.   The method of claim 36, wherein if the step of applying
a dominant anomaly is applied, the step of comparing further

20 comprises at least one of the following steps:

     (h)   applying a threshold-dominant anomaly, wherein said
          threshold-dominant anomaly is based at least in part on
          the most accesses to a given object of interest at a
          plurality of step distances, the accesses to said given

25   object of interest must exceed a pre-set minimum; and

     (i)   applying a complete-a-link anomaly, wherein said
          complete-a-link anomaly is based at least in part on
          the ratio of accesses from a particular objects of
          interest directly linked to another versus a particular

30   objects of interest linked to others by a greater
          distance.

     38.   A computer-readable medium having computer executable
instructions for performing the steps recited in claim 34.

35   39.   A computer-readable medium having computer executable
instructions for performing the steps recited in claim 35.

5   40.   A computer-readable medium having computer executable instructions for performing the steps recited in claim 36.

41.   A computer-readable medium having computer executable instructions for performing the steps recited in claim 37.

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42.   The method of claim 1, wherein the step of customizing the web site is performed automatically by a computer-readable medium having computer executable instructions for performing the step, based at least in part on said recommendations for

15   customizing said web site.

43.   The method of claim 1, wherein the step of customizing said web site is performed by interacting with said web site structure through human intervention, based at least on said

20   recommendations for customizing said web site.

44.   An apparatus for modifying the structure of a network accessible web site, the apparatus comprising:

a communications means for establishing communications with
            said web site;

an input for accepting data representative of activity
            associated with said web site;

a memory buffer for providing storage for a structure
            associated with said web site and said activity;

30   a processing unit for:

applying a set of rules to said activity and said
                structure;

generating a recommendation; and

an output for providing said recommendation.

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5   45. An apparatus for modifying the structure of a network
accessible web site, the apparatus comprising:
            a communications means for establishing communications with
                    said web site;
            an input for accepting data representative of activity
10   associated with said web site and a structure
                    associated with said web site;
            a memory buffer for providing storage for said structure and
                    said activity;
            a processing unit for
15   applying a set of rules to said activity and said
                            structure;
                    generating a recommendation; and
            an output for providing said recommendation.